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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/504,896	02/16/2000	Michel Piche	6013-63US-JA	6548

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EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 01/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/504,896

Applicant(s)

PICHE ET AL.

Examiner

Armando Rodriguez

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 11, 14 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10,12,13,15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsuhashi et al (PN 4,405,236) in view of Spence et al (60-fsec generation from a self-mode-locked Ti:sapphire laser).

Regarding claims 1-4 and 8-10.

In figure 4 Mitsuhashi et al, illustrates an aligned semiconductor laser system, arranged as a ring laser cavity, where the semiconductor laser (11) is provided with an input current (13) to induce lasing.

Mitsuhashi et al fails to disclose misaligning one of the elements making of the laser cavity to achieve passive mode-locking.

On page 43 column 1, Spence et al discloses the laser system achieving self-mode locking by realigning the cavity using one of the end mirrors. Spence et al further discloses the self-mode locking is achieved by applying an external perturbation, such as, tapping one of the resonator mirrors.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to apply the teaching of Spence et al to the structure of Mitsuhashi et al because it would realign the laser cavity and provide mode-locking.

Regarding claims 5-7.

In column 3 lines 28-36 Mitsuhashi et al discloses combining the clockwise beam (19) and the counterclockwise beam (20), whereby the frequency difference between the beams is detected as a beat signal. On page 11 lines 25-28, applicant discloses a plausible interpretation of their system producing a dual wavelength is by one of the facets having a defect. Therefore, by the system of Mitsuhashi et al having different output beams it is implied that an imperfection or defect of one of the facets of the semiconductor laser is an inherent feature.

Regarding claims 12,13,15 and 16.

In figure 4 Mitsuhashi et al, illustrates an aligned semiconductor laser system, arranged as a ring laser cavity, where the semiconductor laser (11) is provided with an input current (13) to induce lasing.

Mitsuhashi et al fails to disclose misaligning one of the elements making of the laser cavity to achieve passive mode-locking.

On page 43 column 1, Spence et al discloses the laser system achieving self-mode locking by realigning the cavity using one of the end mirrors. Spence et al further discloses the self-mode locking is achieved by applying an external perturbation, such as, tapping one of the resonator mirrors.

Since, Spence et al teaches that mode-locking is achieved by realignment of the laser cavity the "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed

invention. The evidence of record including the reference and /or the admissions are considered to reasonably reflect this level of skill.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to cause realignment of the laser cavity using any element of the laser cavity because as disclosed by Mitsuhashi et al realignment of the laser cavity will provide mode-locking of the laser system.

***Allowable Subject Matter***

Claims 11,14,17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 11,14,17, none of the prior arts of record discloses a semiconductor laser having the step of misaligning the mirror to favor amplification of a wavelength shorter than the center wavelength.

***Conclusion***

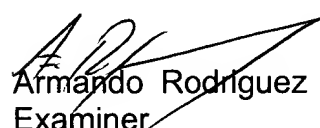
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ipcan be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Art Unit: 2877

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-

4881.

  
Armando Rodriguez  
Examiner  
Art Unit 2828

  
Paul Ip  
Supervisor  
Art Unit 2828

AR/PI  
January 17, 2002